

FIG. 1

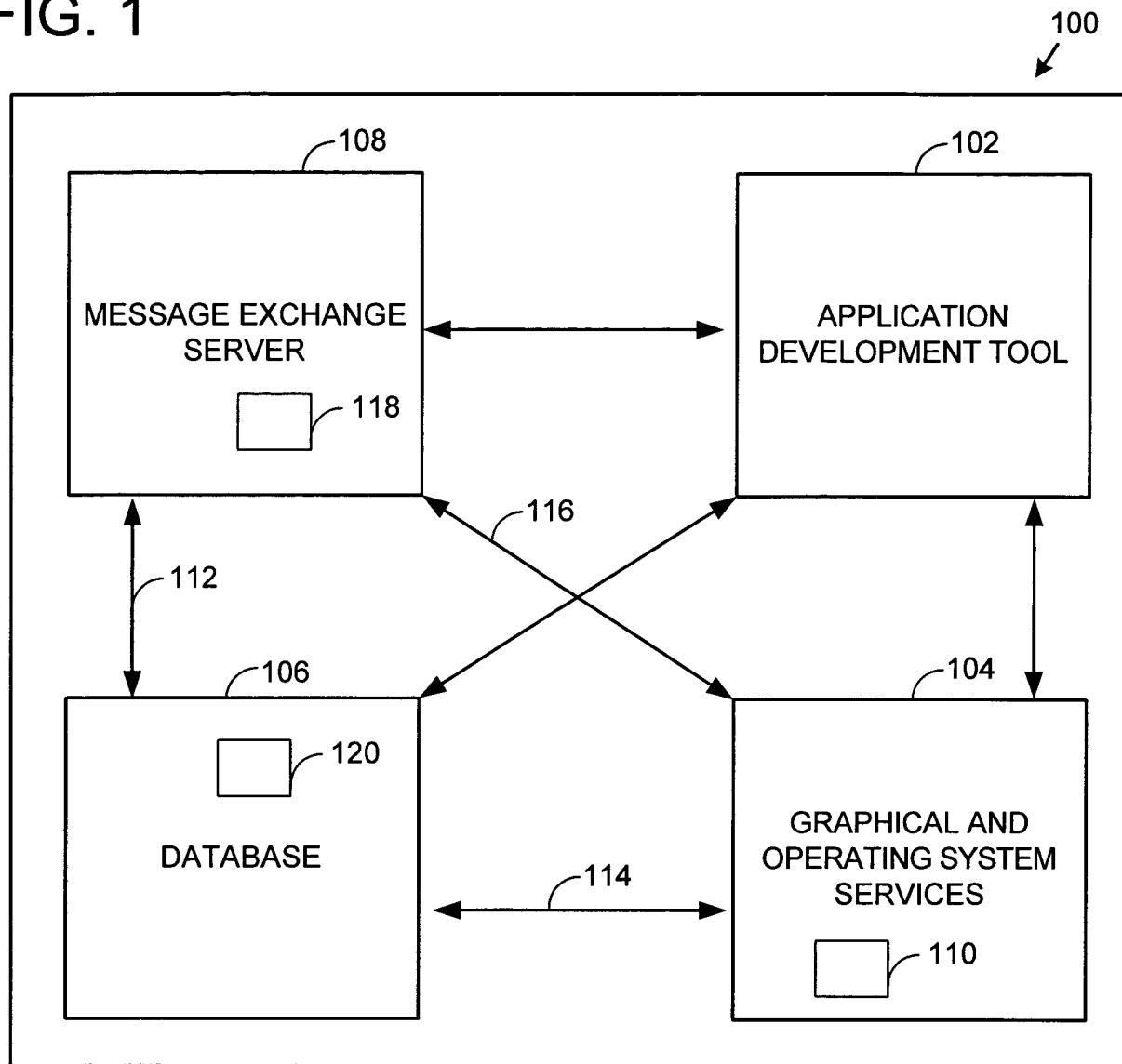


FIG. 2

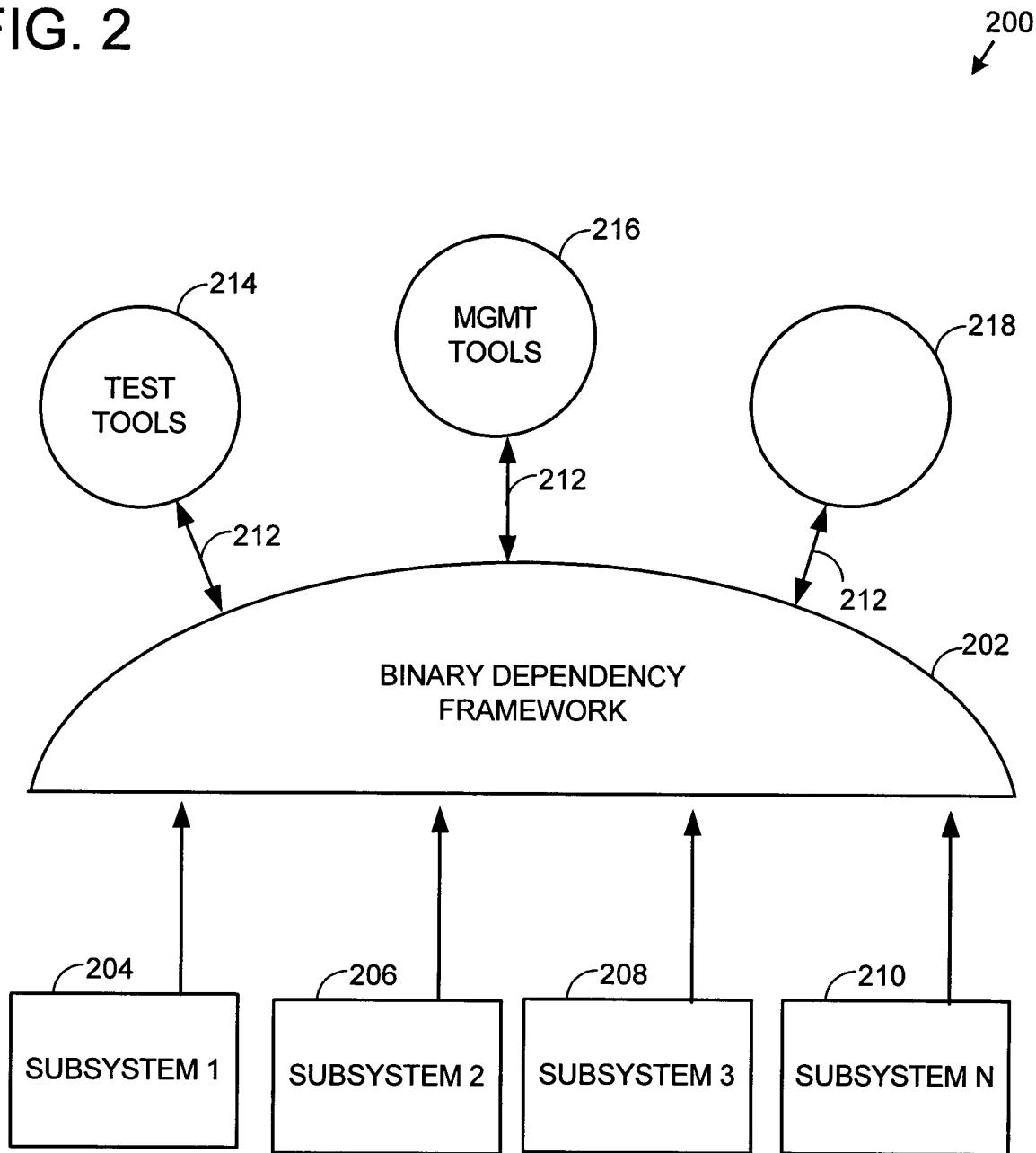


FIG. 3

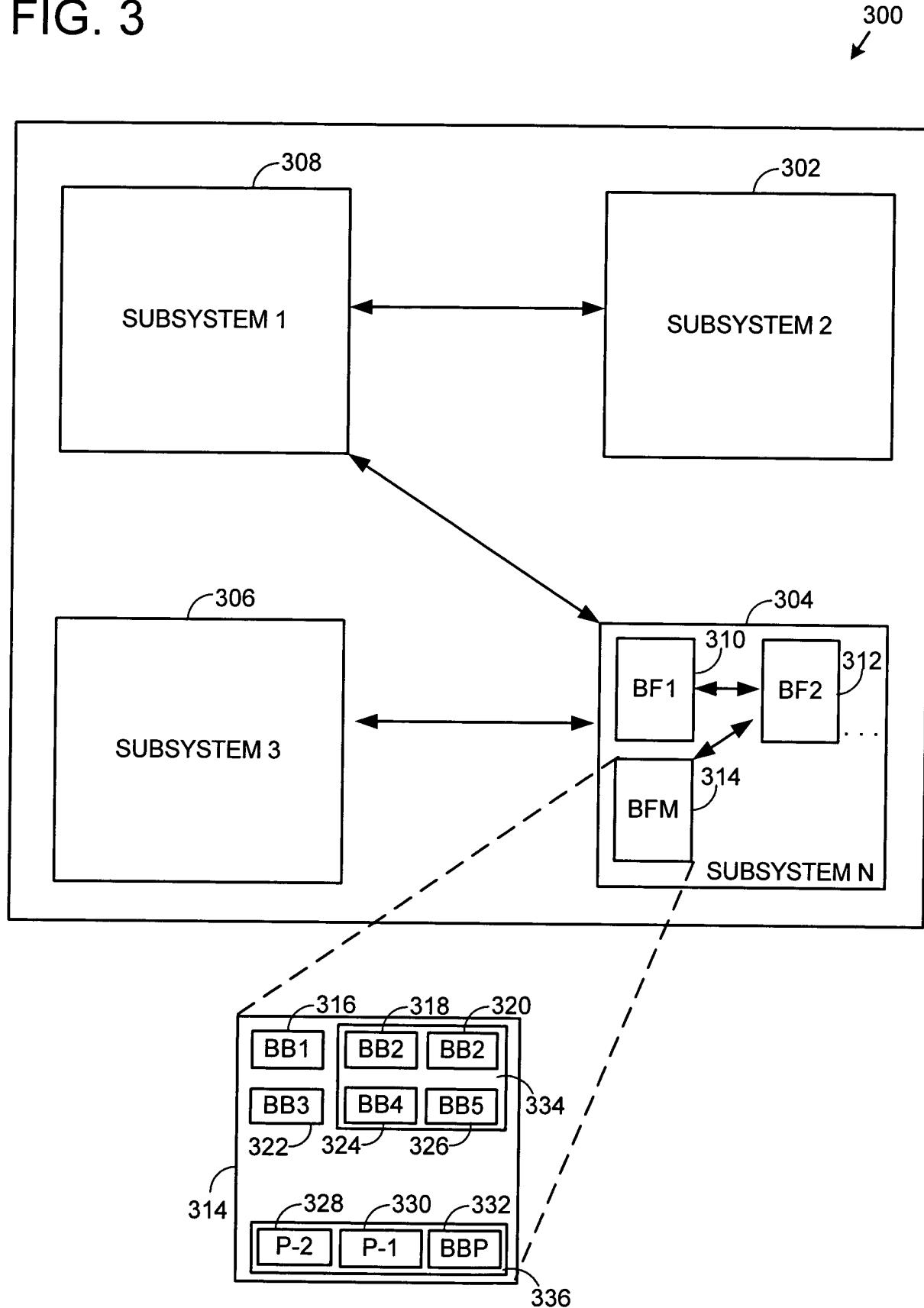


FIG. 4

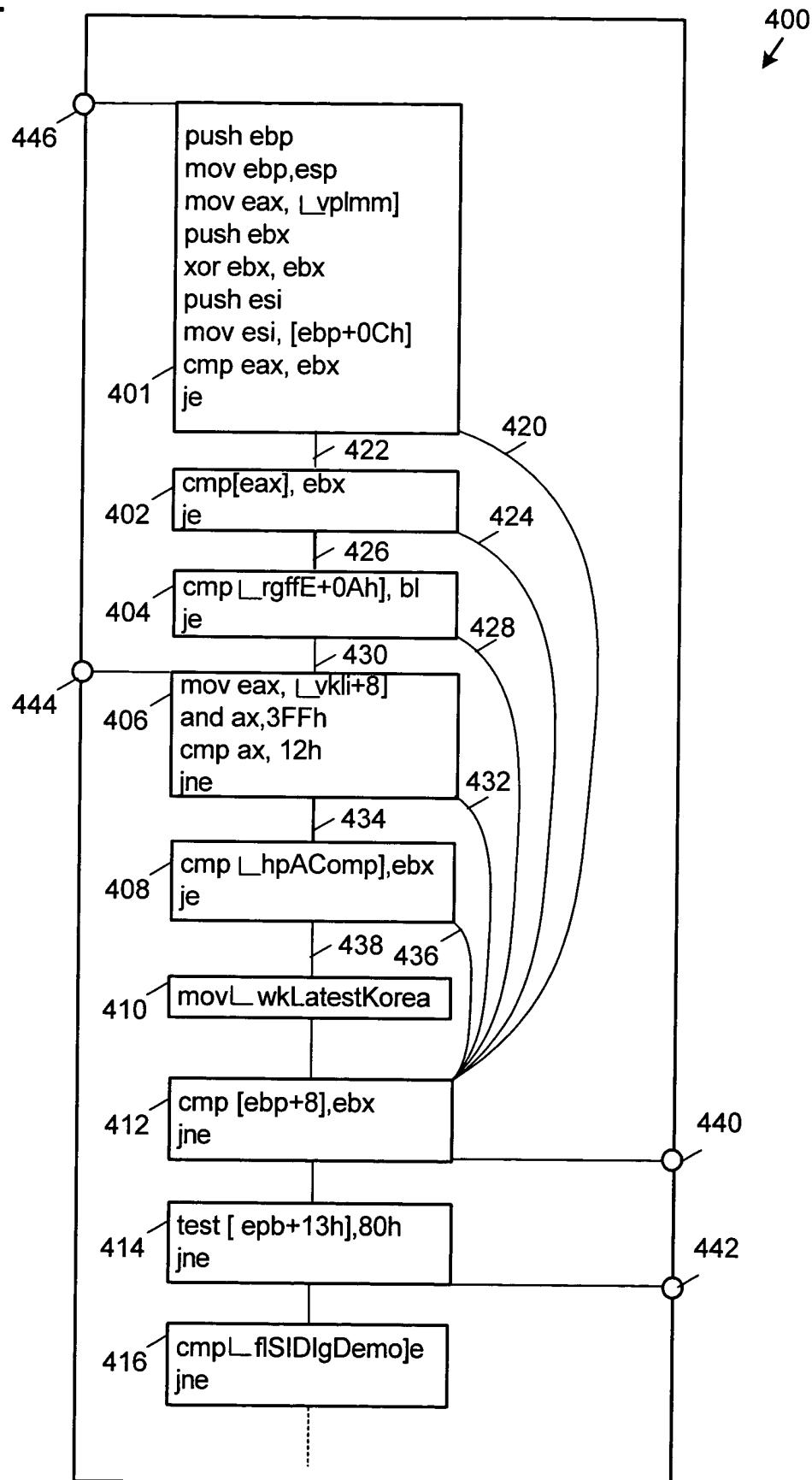


FIG. 5

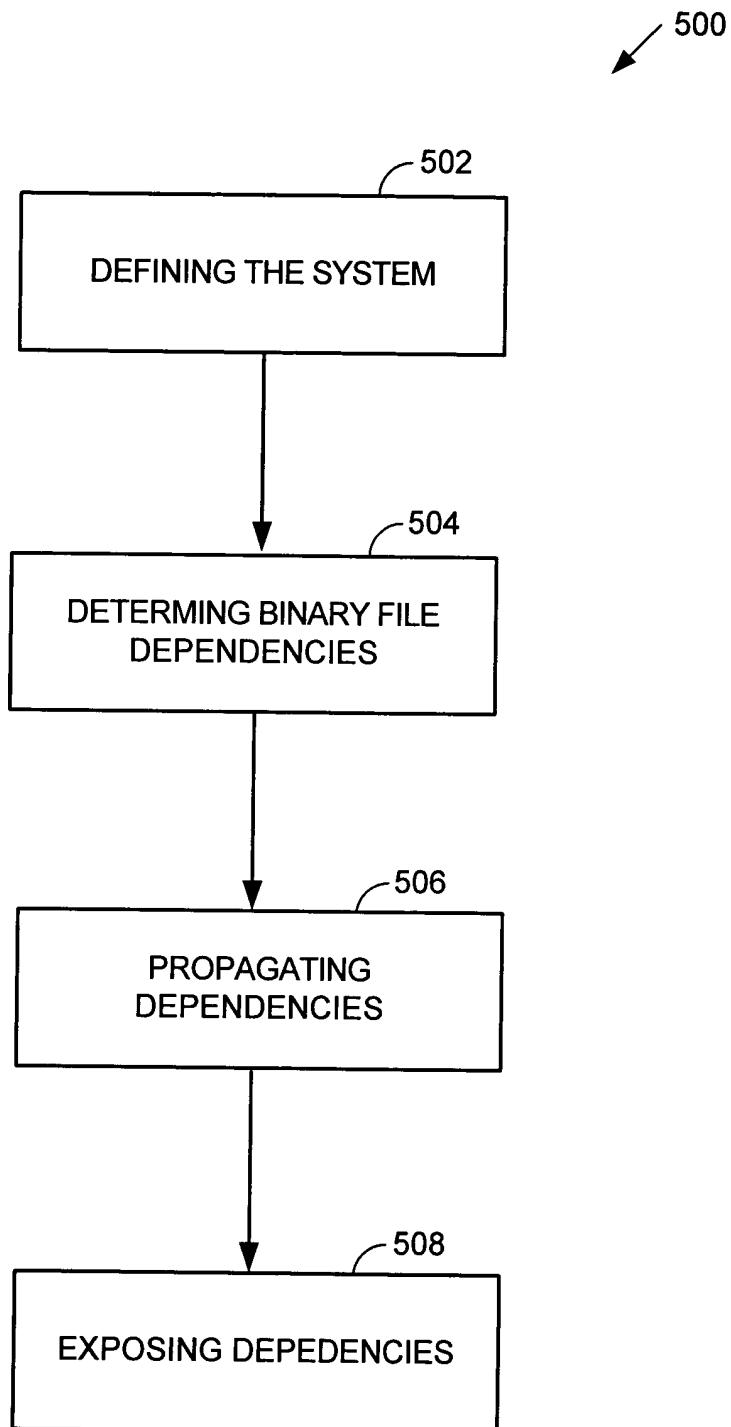


FIG. 6

600

The diagram shows a block of XML code with various numbers (600, 602, 604, 606, 608, 610, 612, 614) pointing to specific elements and attributes within the code. The XML code describes a system structure with subsystems and their dependencies.

```
<system name = "magsys">
  <subsystem name = "magellan" file = "mag.xml">
    <binary name = "coverage.dll" file = "coverage.xml"/>
    <binary name = "covercmd.exe" file = "covercmd.xml"/>
    <binary name = "magcore.dll" file = "magcore.xml"/>
    <binary name = "magtraces.dll" file = "magtraces.xml"/>
  </subsystem>
  <subsystem name = "vulcan" file = "vulcan.xml">
    <binary name = "vulcan23.dll" file = "vulcan23.xml" />
    <binary name = "vuldyn.exe" file = "vuldyn.xml" />
    <binary name = "vuldynpxy.dll" file = "vuldynpxy.xml" />
    <binary name = "vulutil.dll" file = "vulutil.xml" />
  </subsystem>
  <subsystem name = "vc" file = "vc.xml">
    <binary name = "mspdb71.dll" file = "mspdb71.xml" />
    <binary name = "msvcr71.dll" file = "msvcr71.xml" />
    <binary name = "msvcp71.dll" file = "msvcp71.xml" />
    <binary name = "msobj71.dll" file = "msobj71.xml" />
  </subsystem>
  <subsystem name = "windows" file = "windows.xml">
    <binary name = "kernel32.dll" file = "kernel32.xml" />
    <binary name = "nt.dll" file = "nt.xml" />
    <binary name = "user32.dll" file = "user32.xml" />
    <binary name = "gdi32.dll" file = "gdi32.xml" />
  </subsystem>
</system>
```

Annotations:

- 600: Points to the number 600 at the top right of the page.
- 602: Points to the attribute "name = "magsys"" in the root tag.
- 604: Points to the attribute "name = "magellan"" in the first tag.
- 606: Points to the attribute "name = "coverage.dll"" in the first tag of the first tag.
- 608: Points to the attribute "name = "magcore.dll"" in the third tag of the first tag.
- 610: Points to the attribute "file = "mag.xml"" in the first tag.
- 612: Points to the attribute "name = "windows"" in the first tag of the tag.
- 614: Points to the attribute "file = "gdi32.xml"" in the last tag of the first tag.

FIG. 7

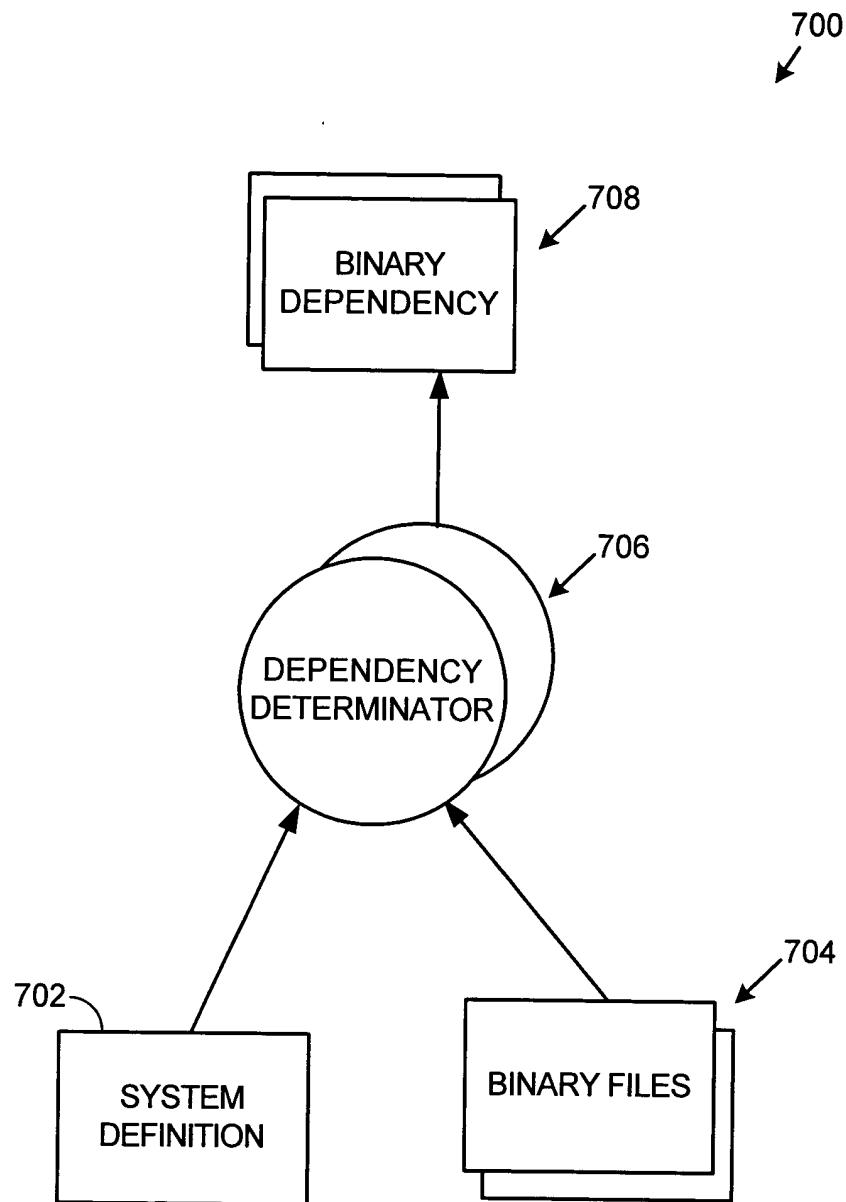


FIG. 8

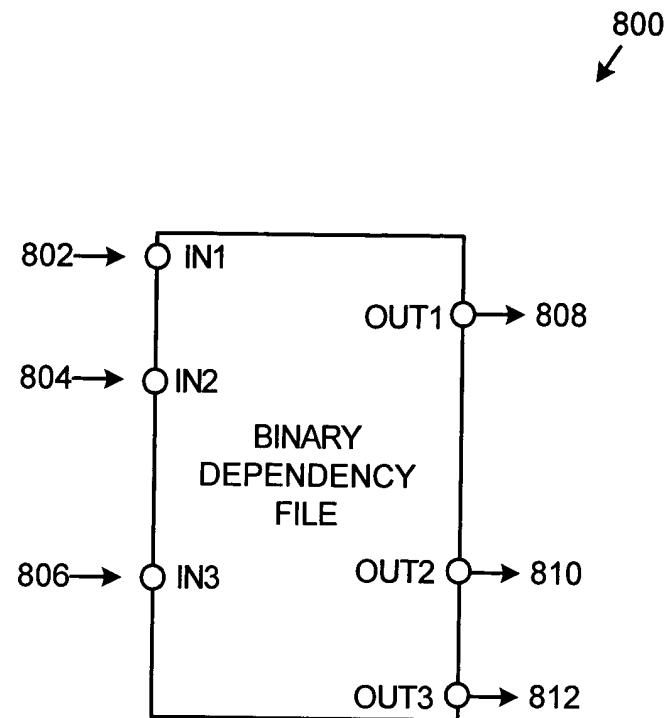


FIG. 9

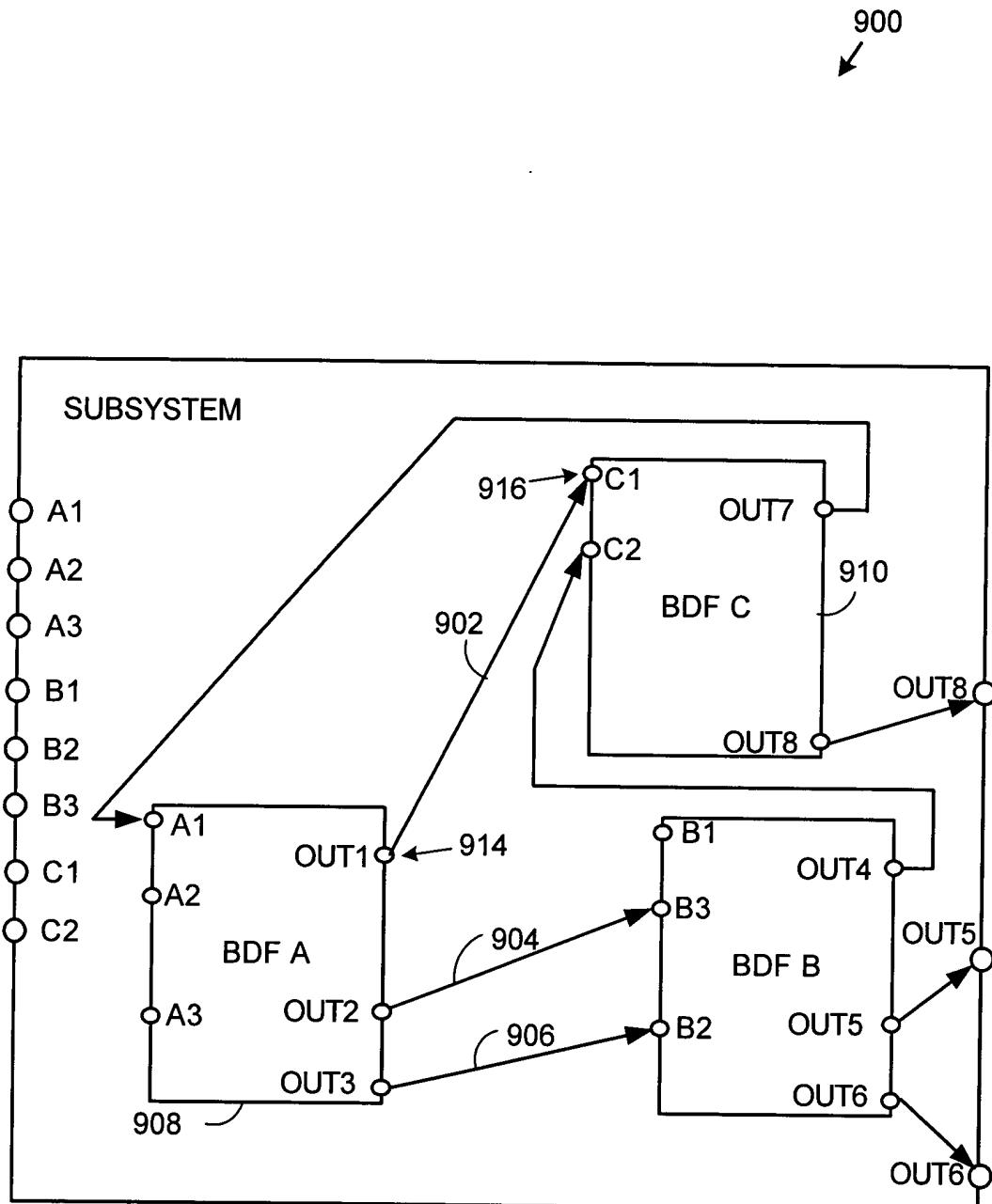


FIG. 10

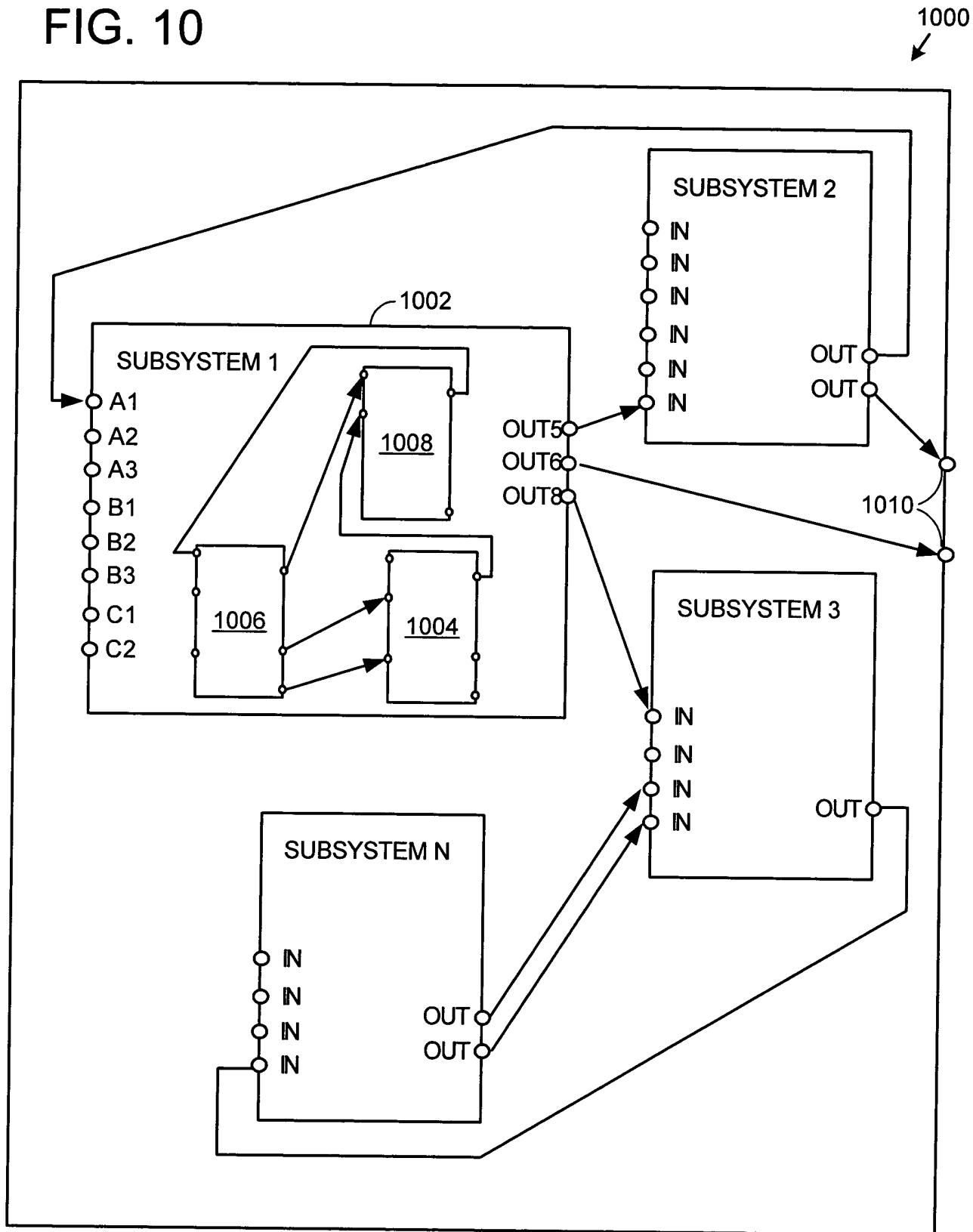


FIG. 11

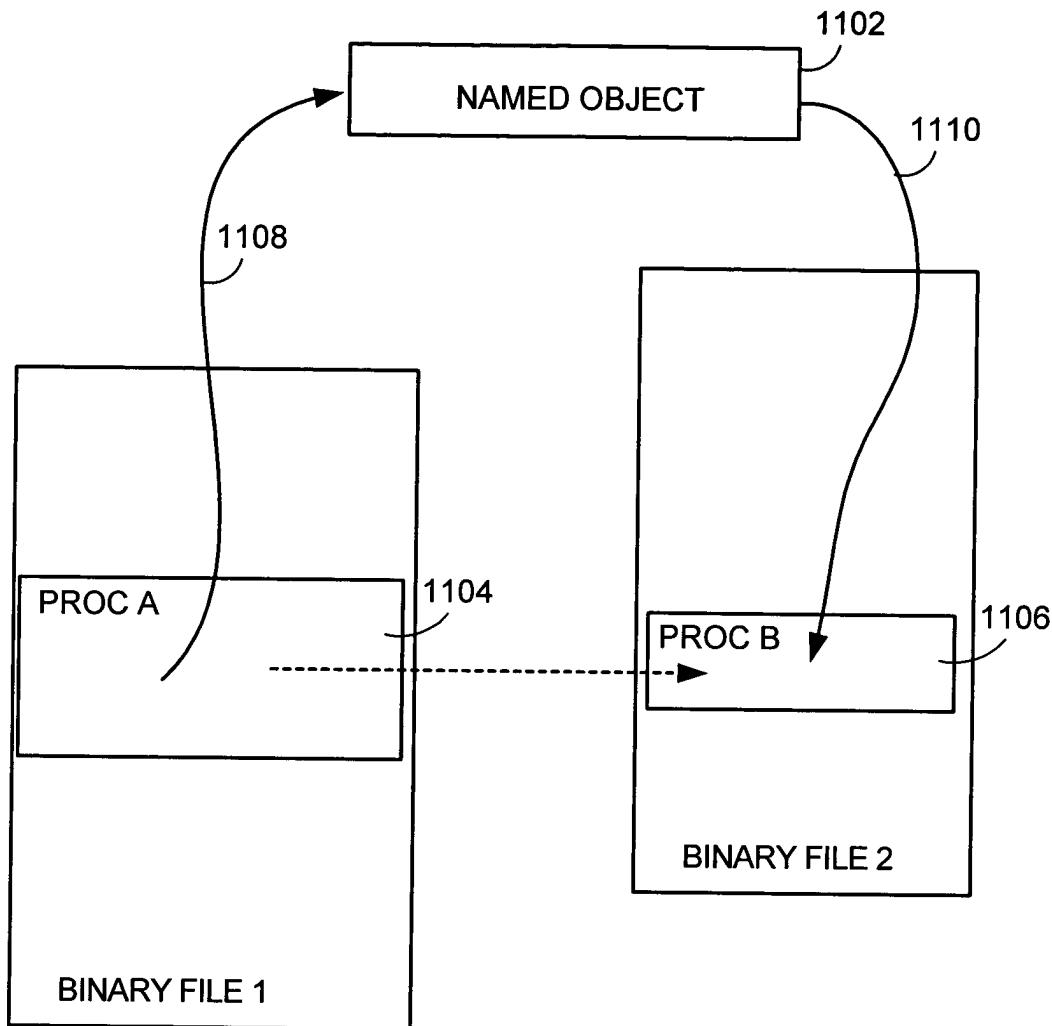


FIG. 12

1200
↓

CLASS SYSTEM ← 1202
METHOD CREATEFROM (*SYSTEMDEFFILE, *GUIDMAPFILE)
METHOD DESTROY () ← 1208
METHOD NAME () ← 1210
METHOD FILE() ← 1212
METHOD GUIDMAPPINGFILE() ← 1214
METHOD FIRSTSUBSYSTEM () ← 1216
METHOD NEXTSUBSYSTEM () ← 1218
METHOD FIRSTNAMEDOBJECT() ← 1220
METHOD NEXTNAMEDOBJECT() ← 1222
METHOD FINDNODE (*BINARYNAME, *FNNAME) ← 1224
METHOD FINDBINARY (*BINARYNAME) ← 1226
METHOD FINDNAMEDOBJECT (*NAMEDOBJECT) ← 1228
CLASS SUBSYSTEM ← 1230
METHOD NAME () ← 1232
METHOD TYPE ()
METHOD GETSYSTEM () ← 1236
METHOD FIRSTBINARY () ← 1238
METHOD NEXTBINARY () ← 1240
METHOD GETASSEMBLY ()
CLASS BINARY ← 1244
METHOD NAME () ← 1246
METHOD XMLFILE () ← 1248
METHOD DIRECTORY () ← 1250
METHOD GETSUBSYSTEM () ← 1252
METHOD FIRSTINPUT () ← 1254
METHOD NEXTINPUT () ← 1256
METHOD CREATEILBINARY ()
CLASS NODE ← 1260
METHOD NAME () ← 1262
METHOD GETFIRSTCALLER () ← 1264
METHOD GETNEXTCALLER () ← 1268
METHOD GETFIRSTCALLEE () ← 1270
METHOD GETNEXTCALLEE () ← 1272
CLASS ILBINARY ← 1274
CLASS ASSEMBLY ← 1276
CLASS NAMEDOBJECT ← 1278
CLASS FILTER ← 1280
CLASS PROCEDURE ← 1282
CLASS PARAMETER ← 1284

FIG. 13

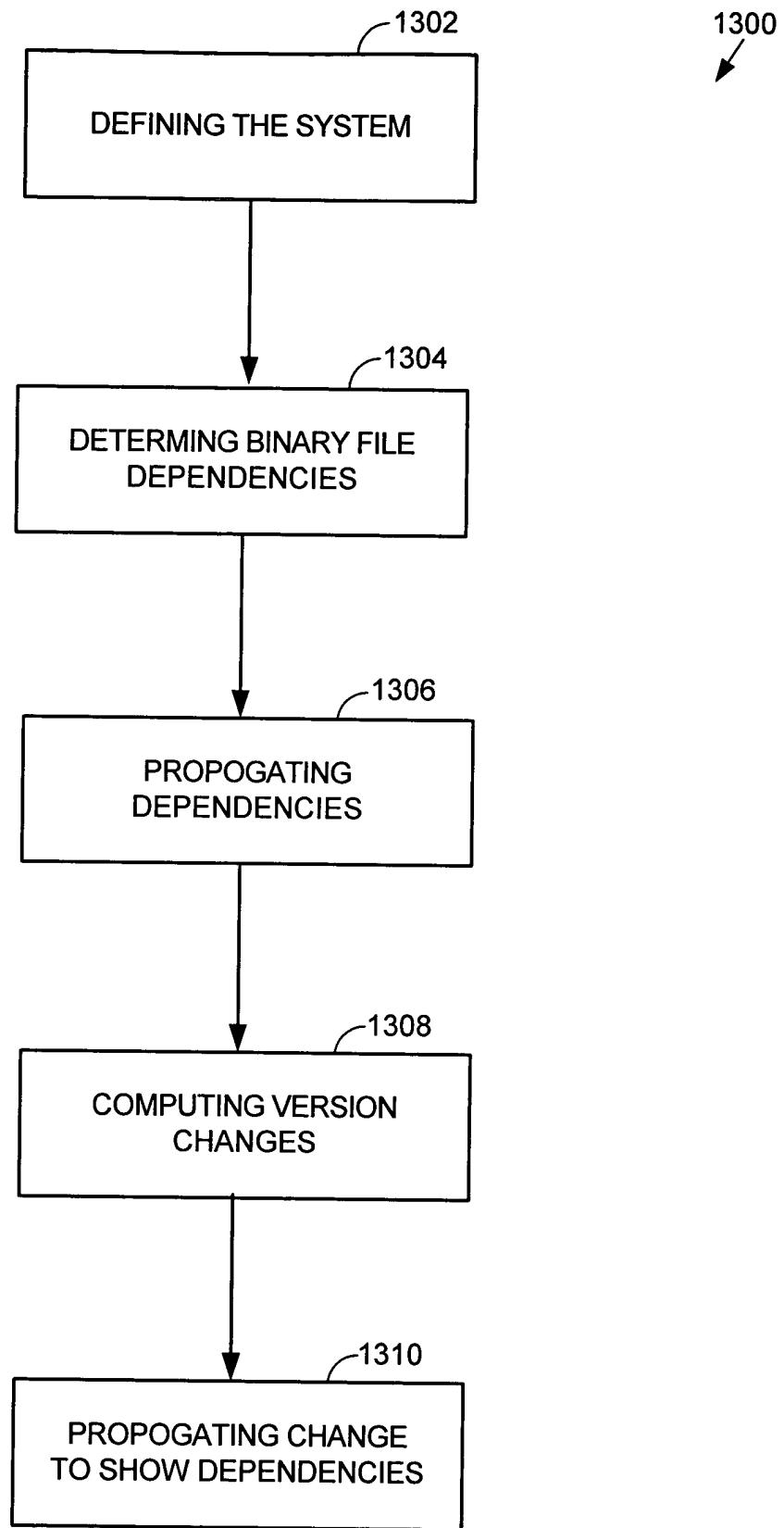


FIG. 14

Input: System Definition File: System, Subsystem Sets
Binary Information File: Entry-Exit dependencies
Output: A set of affected entry points for Binary and Subsystem, and System

Algorithm:

```
for each subsystem s in System           1408
{
  for each binary b in s                1402
  {
    mark blocks changed (modified or added)
    mark entry points of b that can reach a
    changed block as affected          1404
  }
  1406
}
1410

while no new entry point is marked affected
{
  for each binary b in Subsystem       1412
  {
    for each exit point x in b not marked affected and
    connected to an entry point marked affected
    {
      mark all entry points of b dependent on x as affected 1414
    }
  }
  1416
}

while no new entry point is marked affected
{
  for each subsystem s in System       1418
  {
    for each exit point x in s not marked affected and
    connected to an entry point marked affected
    {
      mark all entry points of s dependent on x as affected 1420
    }
  }
  1422
}
```

FIG. 15

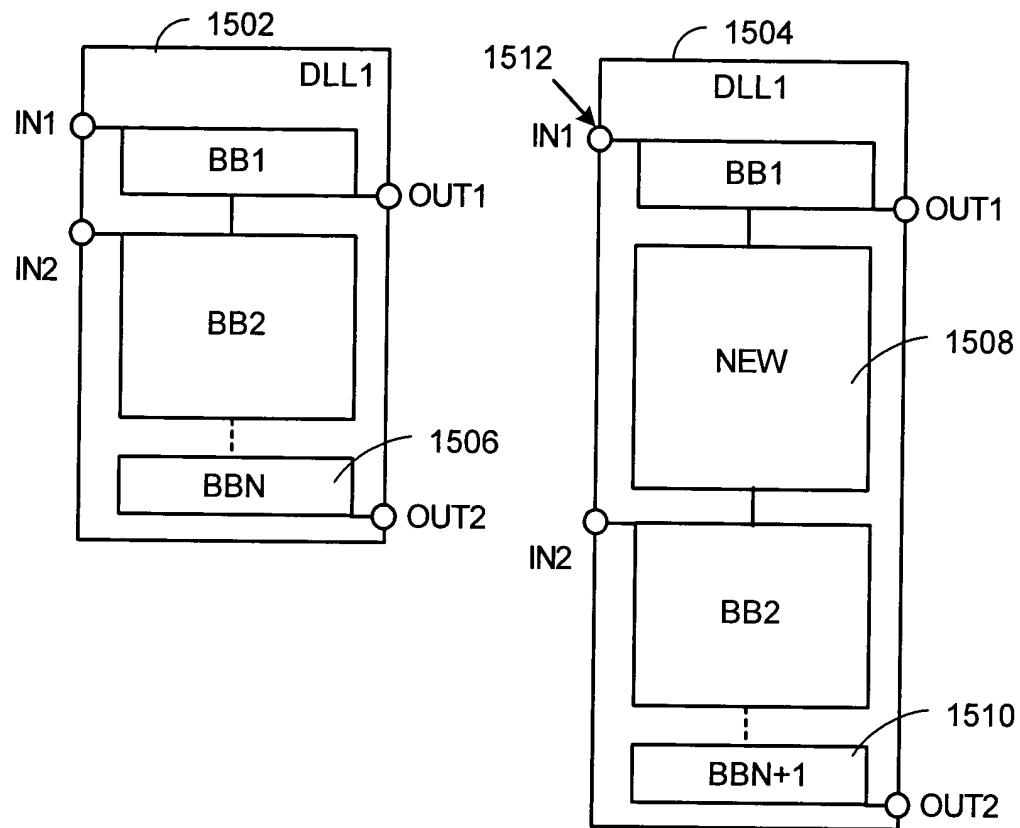


FIG. 16

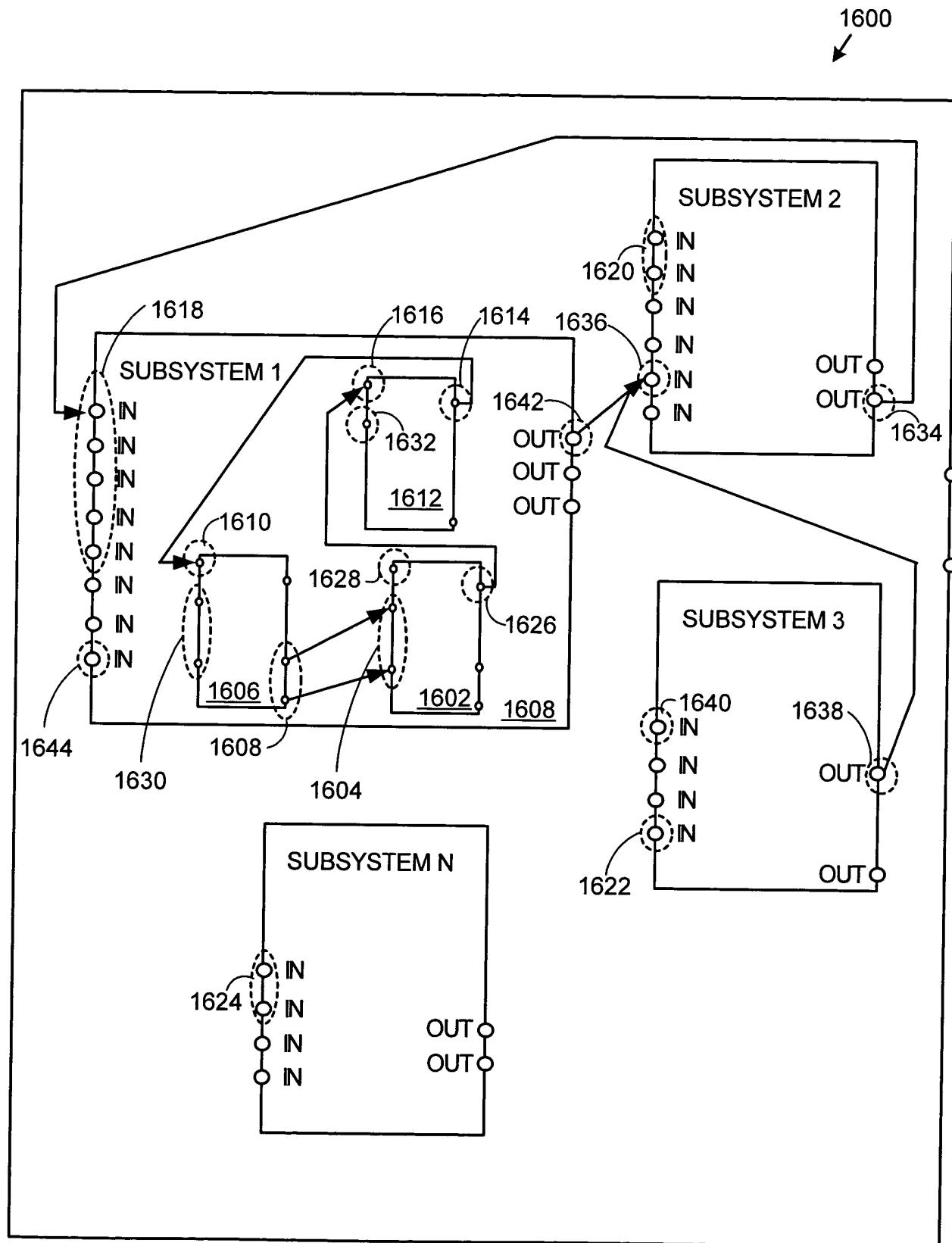


FIG. 17

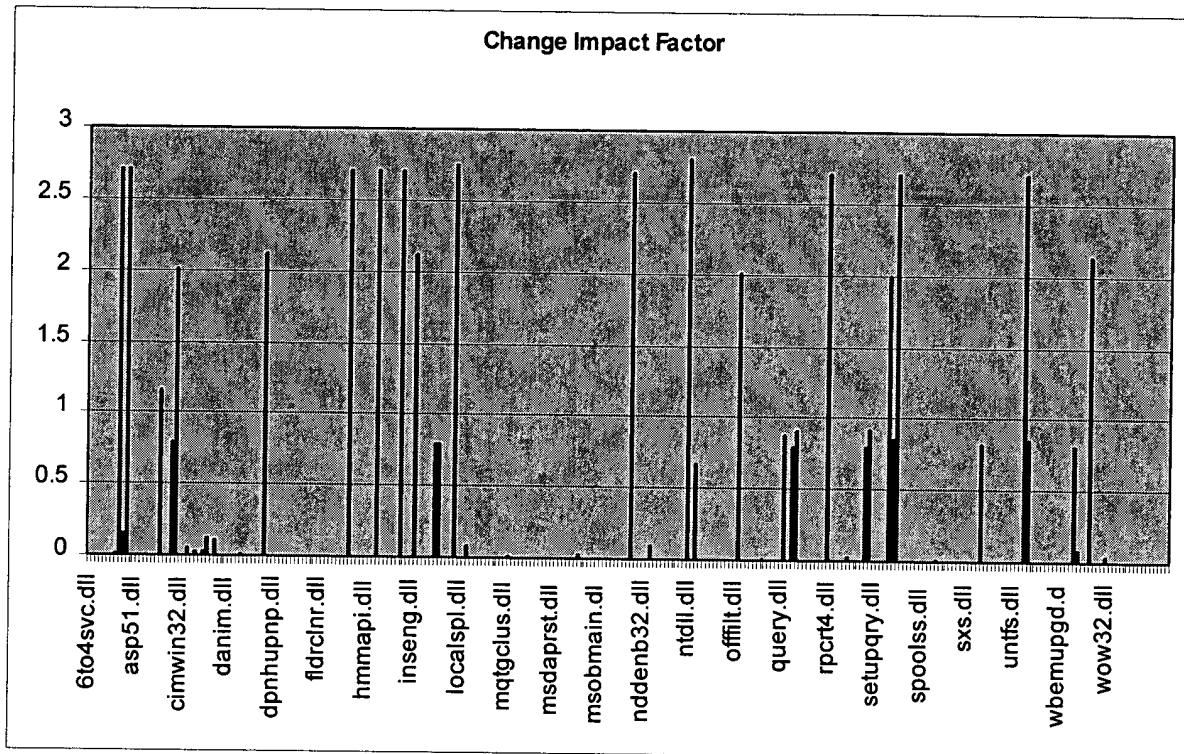


FIG. 18

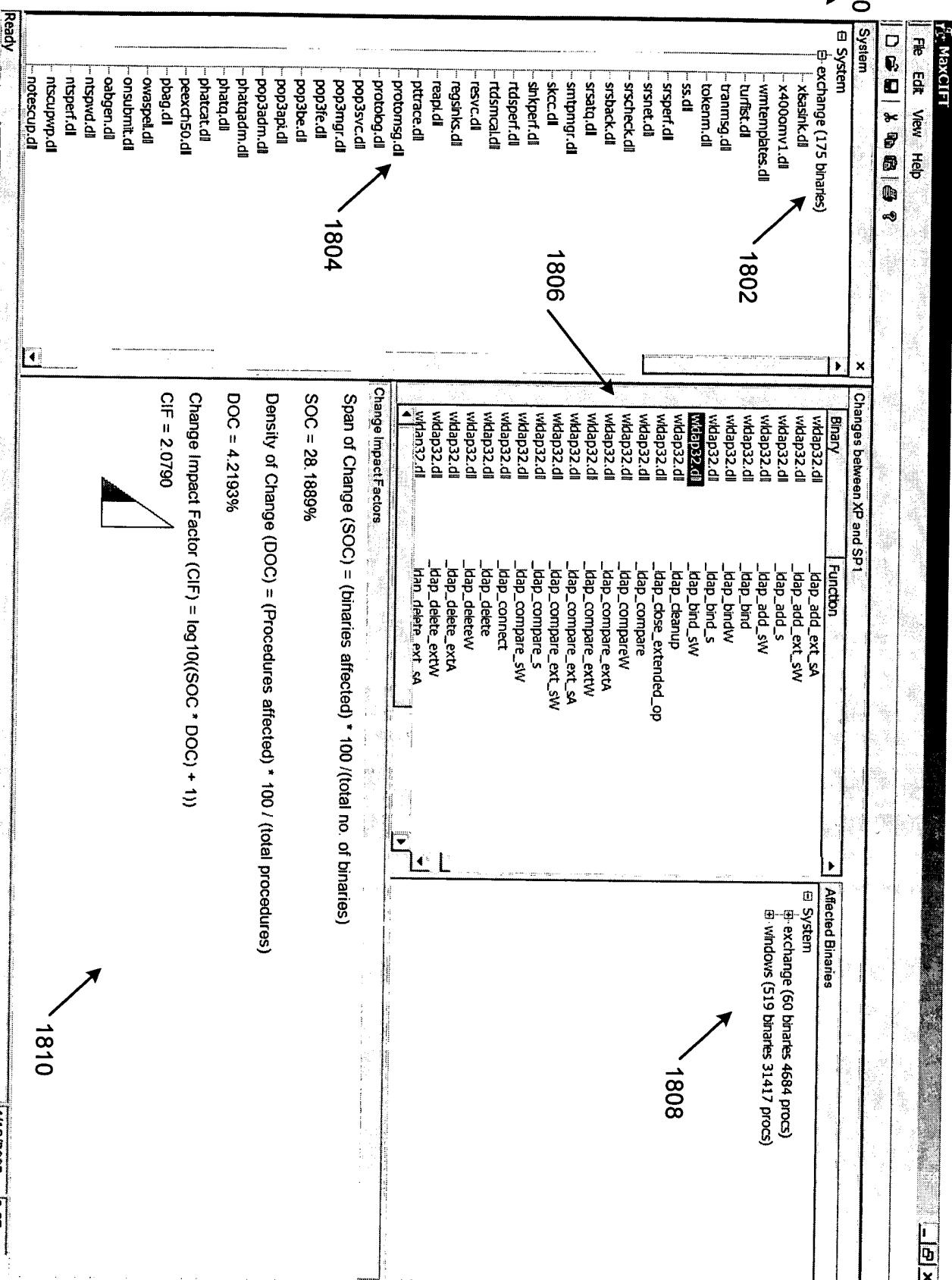


FIG. 19

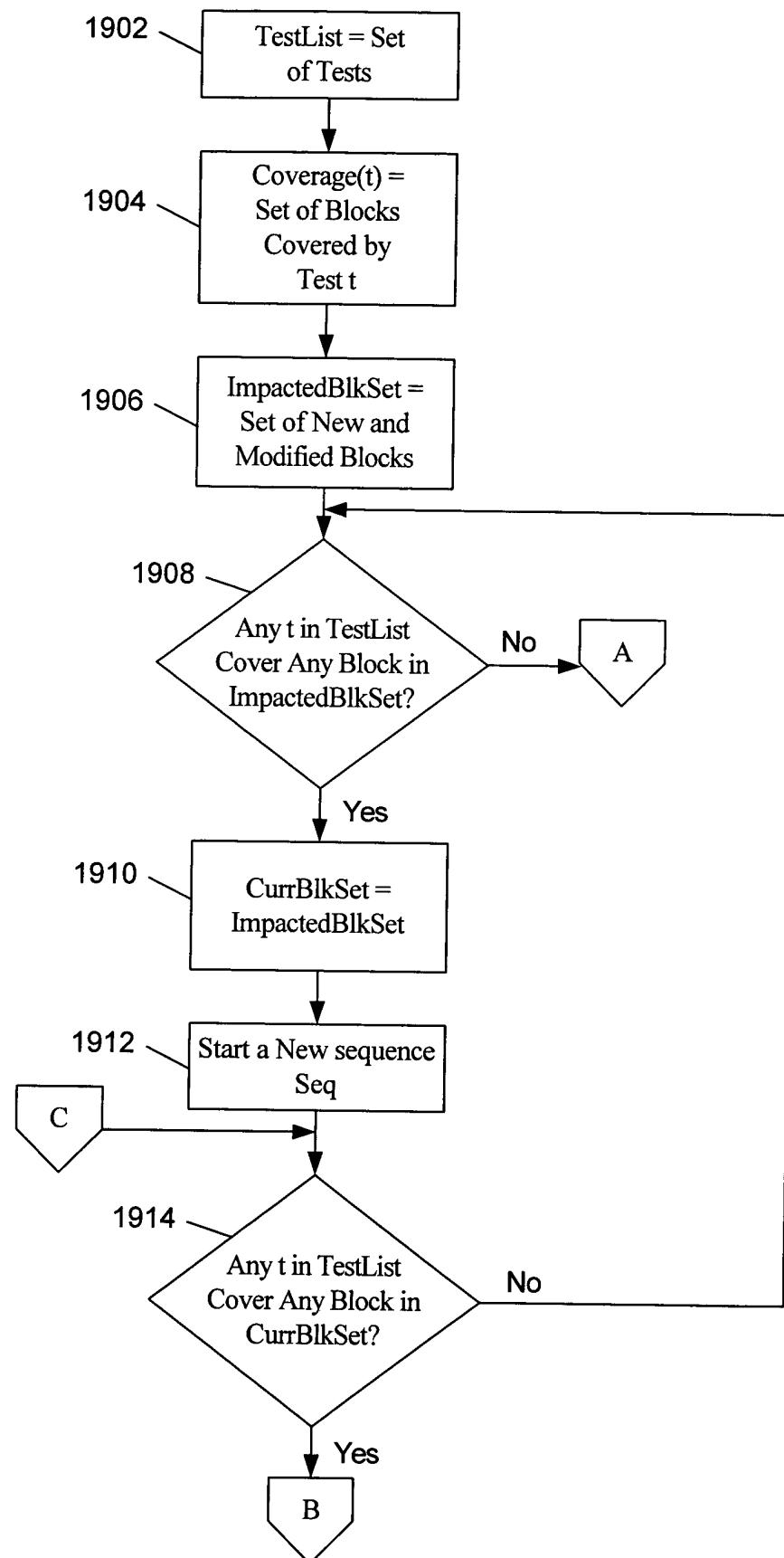


FIG. 20

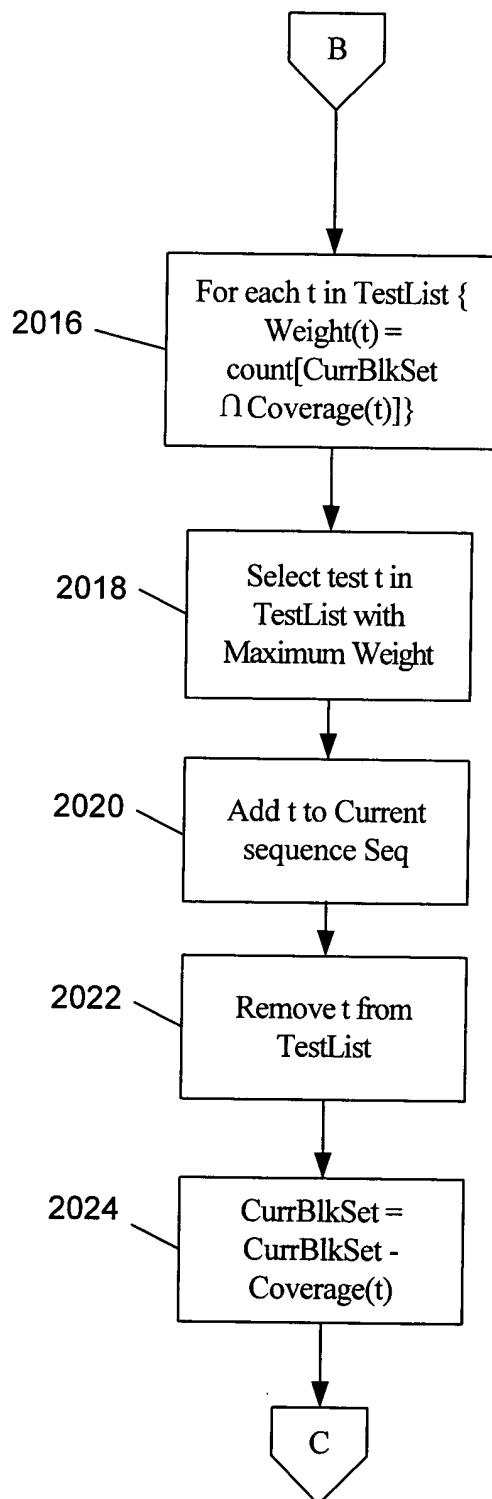
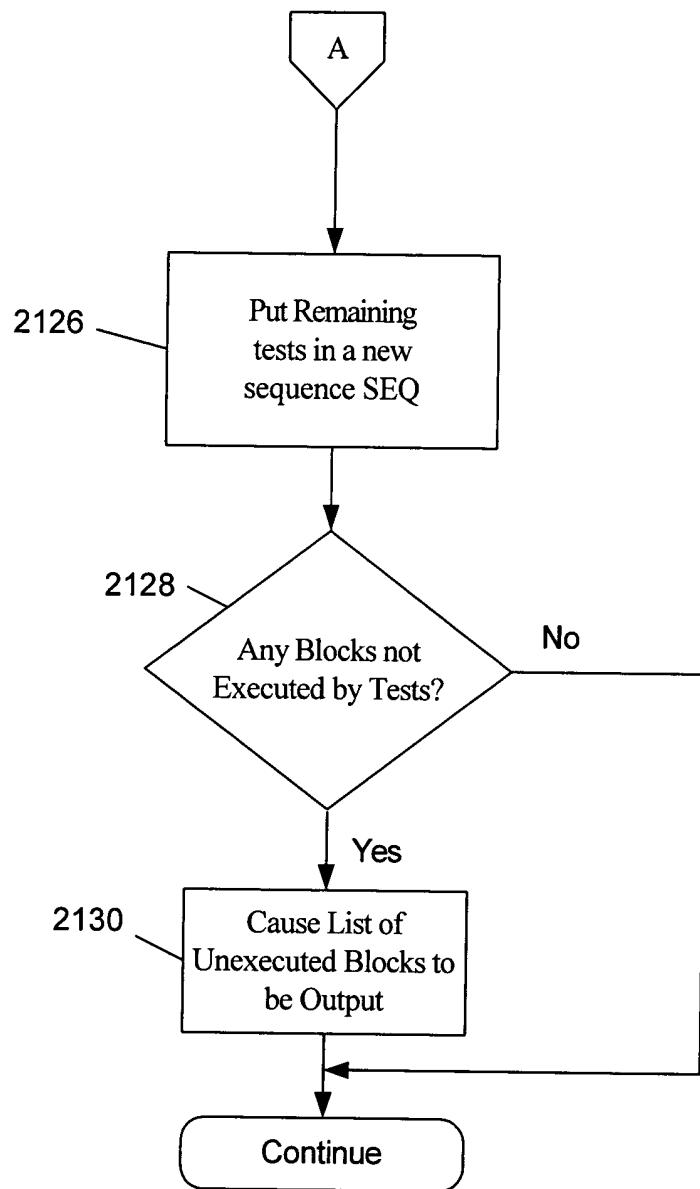


FIG. 21



1 2 3 4 5 6 7

Impacted Block Map

FIG. 22

Set 3

T4

T5

Set 2
T3

T5

Set 3
T4

Weights

T1

T2

5

2

5

2

5

2

Set 2
T3

T5

2

0

4

0

1

0

T5

1

0

4

0

1

0

T5

3

0

3

1

0

1

T5

3

0

3

1

0

1

T5

1

2

3

4

5

6

T5

2

3

4

5

6

7

T5

3

4

5

6

7

1

T5

4

5

6

7

1

2

T5

5

6

7

1

2

3

T5

6

7

1

2

3

4

T5

7

1

2

3

4

5

T5

T5

T4

T3

T2

T1



FIG. 23

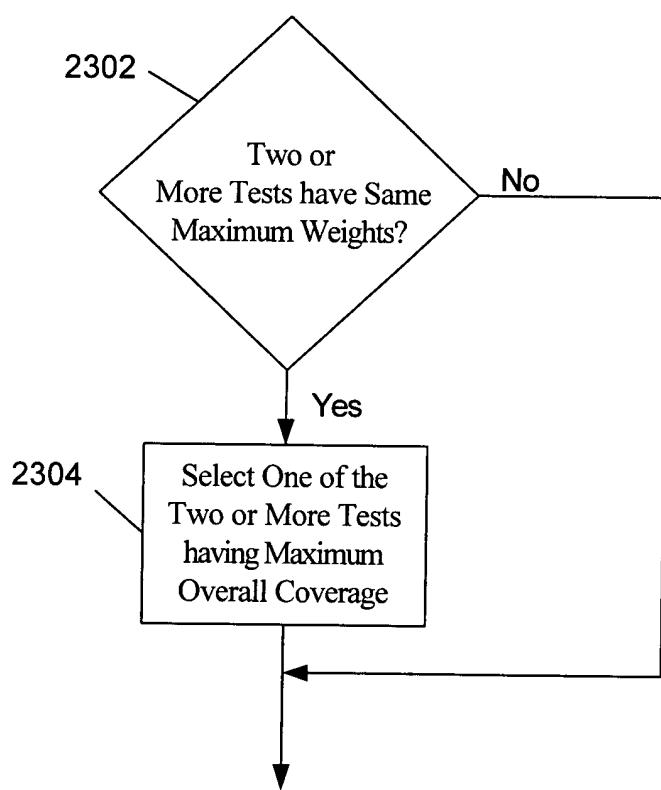


FIG. 24

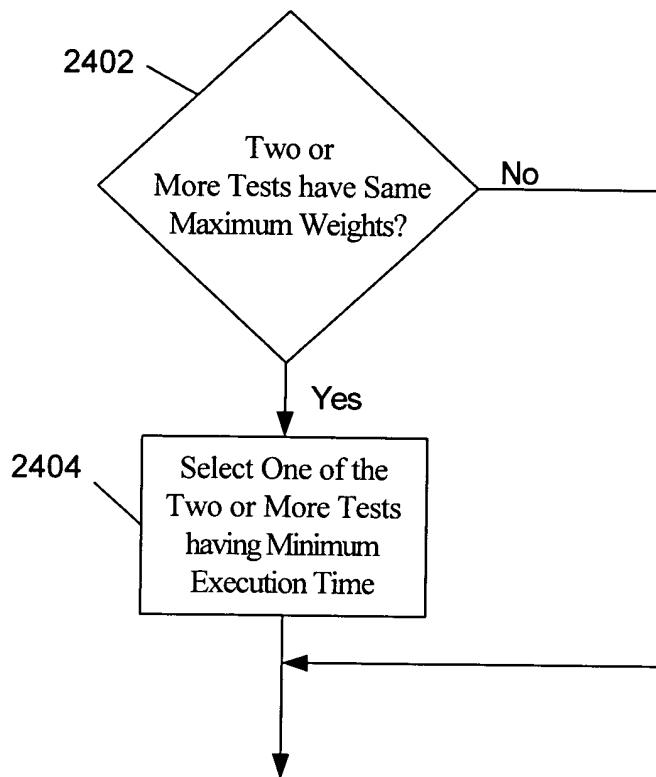


FIG. 25

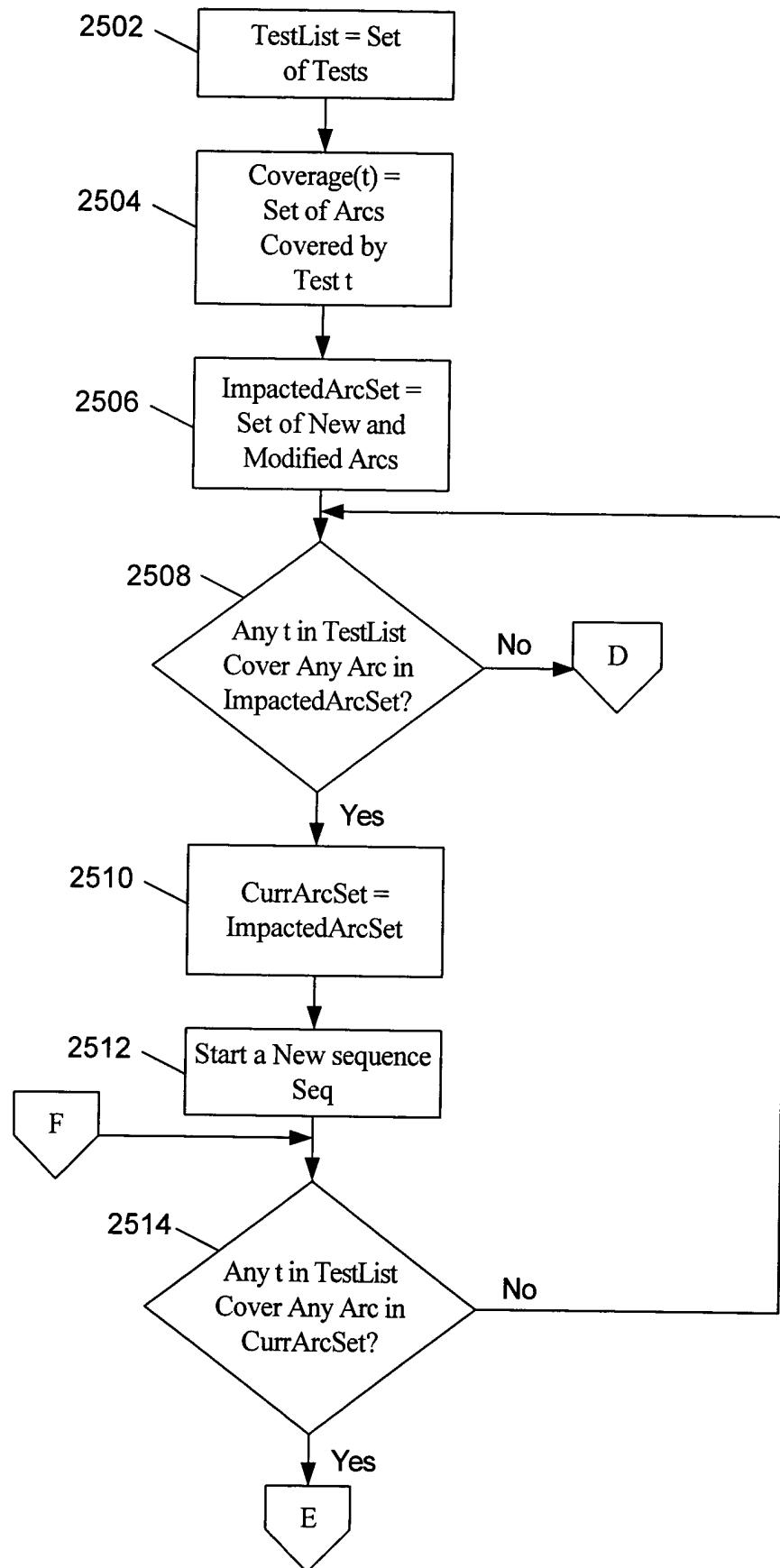


FIG. 26

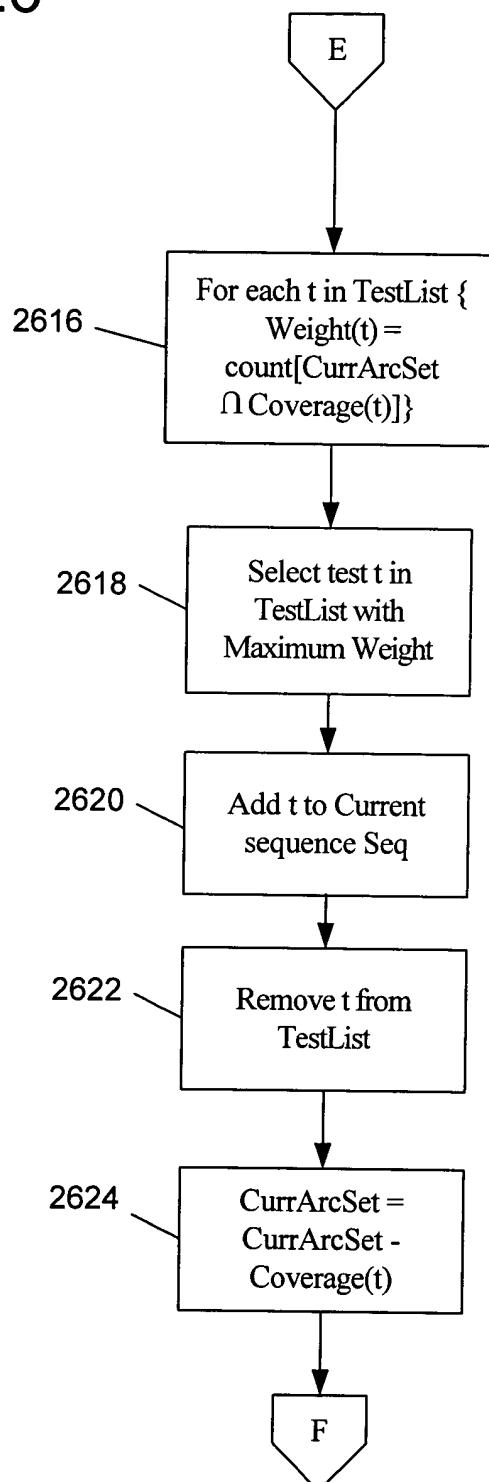


FIG. 27

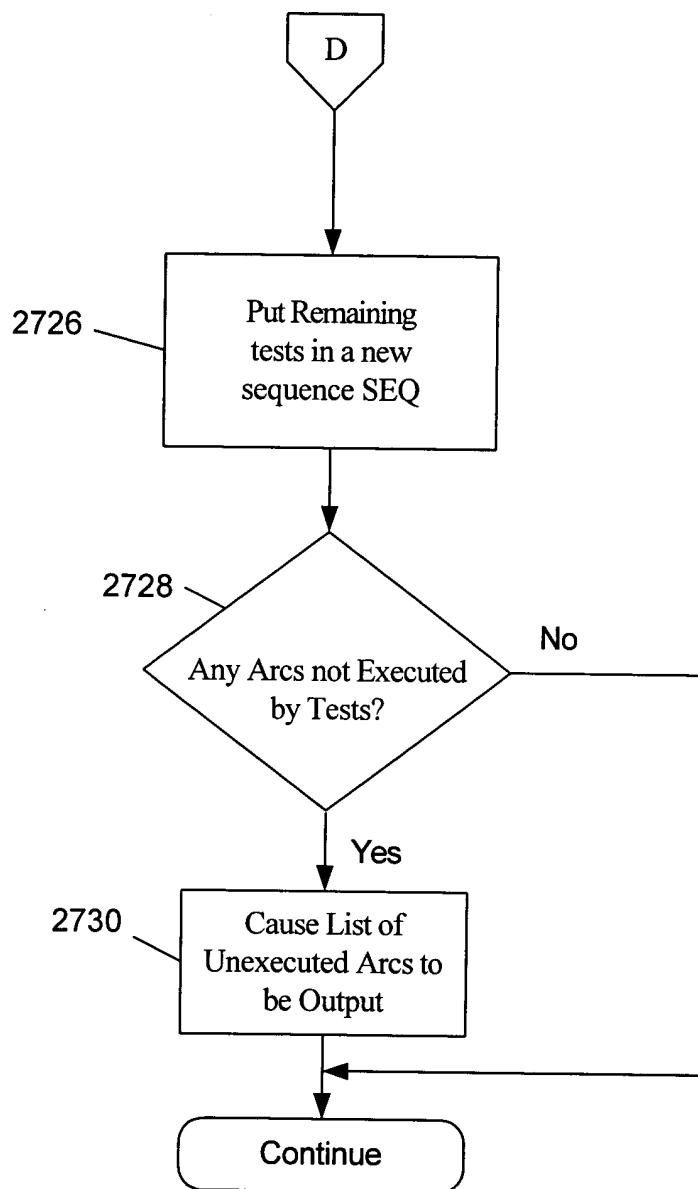
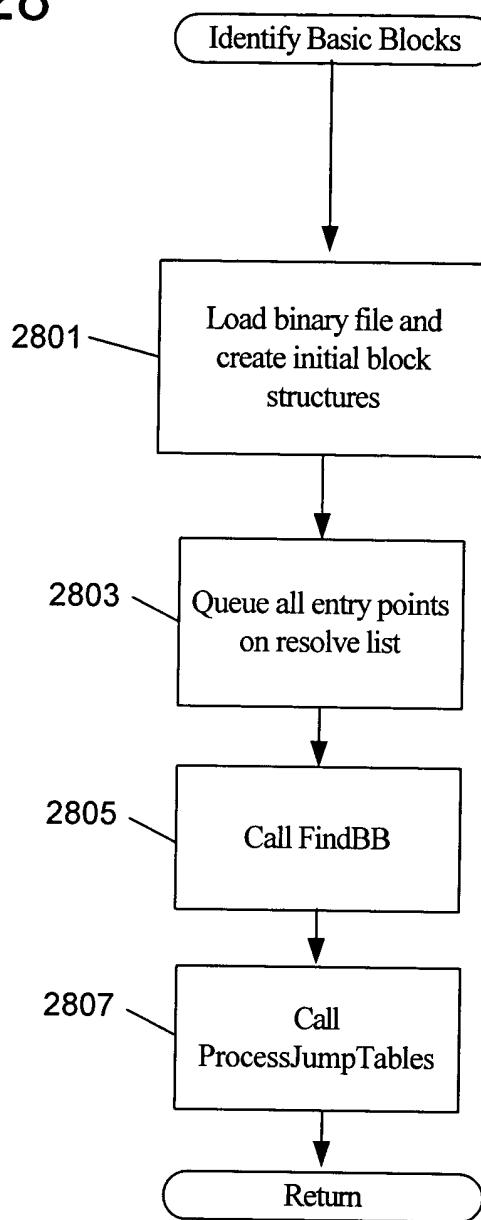


FIG. 28



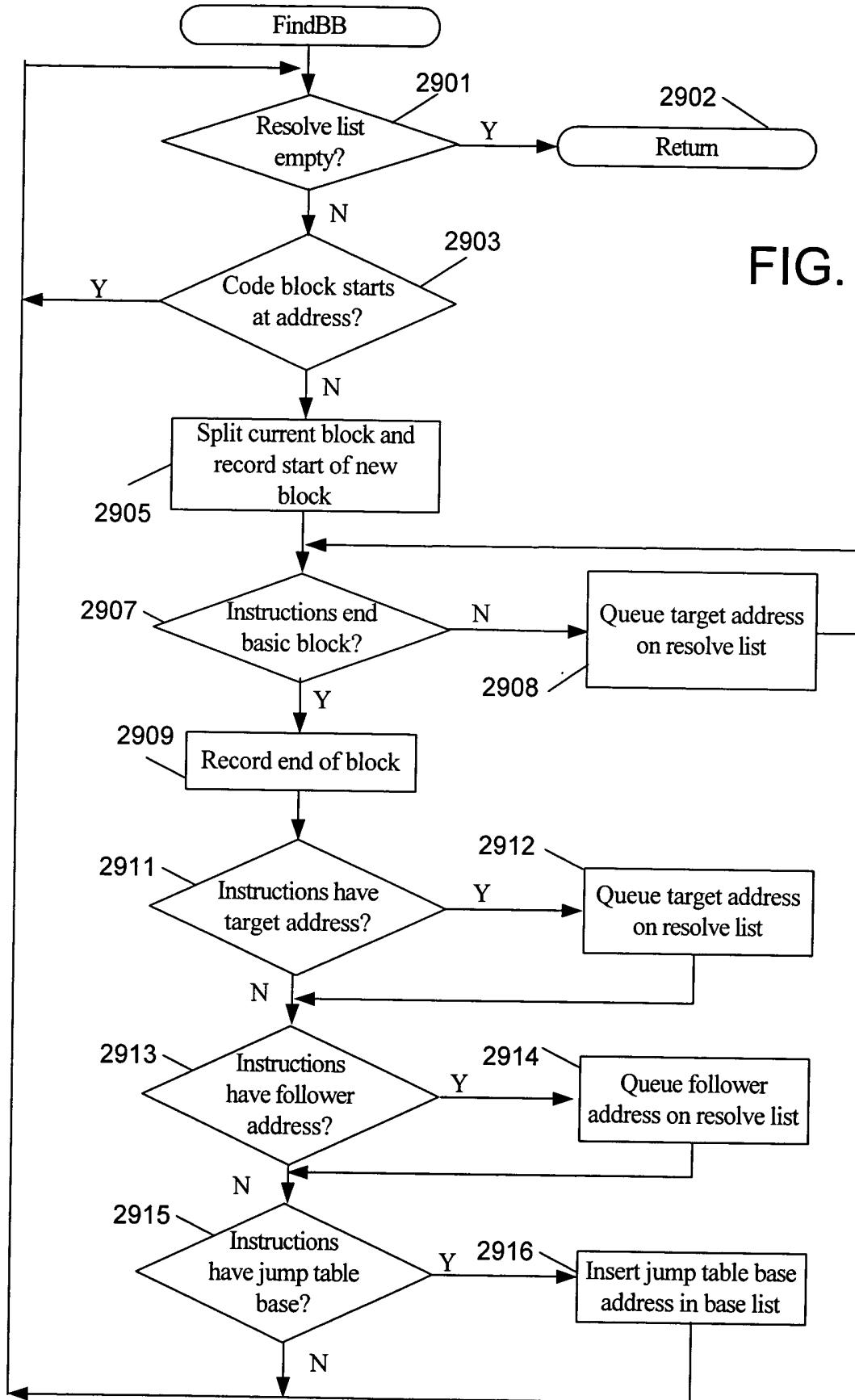


FIG. 29

FIG. 30

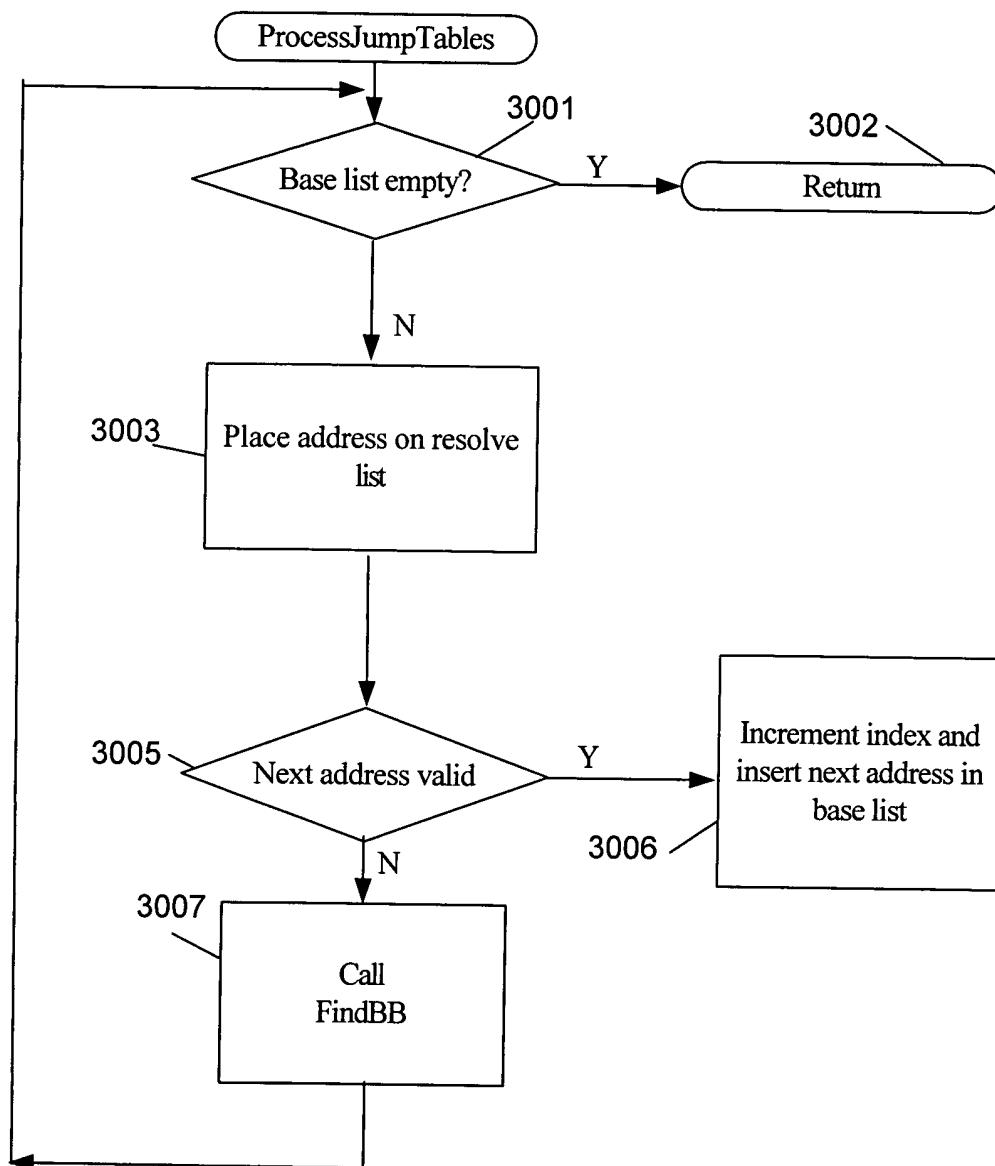


FIG. 31

